

IT COOLING

TELECOM SOLUTIONS

# TELECOM SOLUTIONS

## AIR CONDITIONERS FOR TELECOMMUNICATION FROM 1,5 TO 20 kW

- ▶ Low operational and maintenance costs
- ▶ Wide range of full inverter solutions
- ▶ Reliability and extended operation
- ▶ Advanced control
- ▶ Free-cooling



# TELECOM SOLUTIONS

## RELIABILITY AND EXTENDED OPERATION

### Reliability and extended operation

Constructional rationality plus the proven high quality of the components ensure that MEHITS's units offer:

- ✓ Continuous operation (24 hours a day, 365 days a year).
- ✓ Design life of over 10 years.
- ✓ MTBF and MTTR values at the top of their category.



## ADVANCED CONTROL

### The microprocessor allows:

Stand-by and alarm management

The microprocessor allows:

- ✓ Easy-to-use navigation;
- ✓ Advanced management of the stand-by unit;
- ✓ Automatic rotation on a time basis;
- ✓ Alarm rotation;
- ✓ Alarm management and transmission;
- ✓ LAN management between connected units;
- ✓ Easy connection to supervisory systems;
- ✓ Double power supply management;
- ✓ Multi-language management;
- ✓ Emergency function;
- ✓ Manual function.



## EXTREMELY LOW NOISE

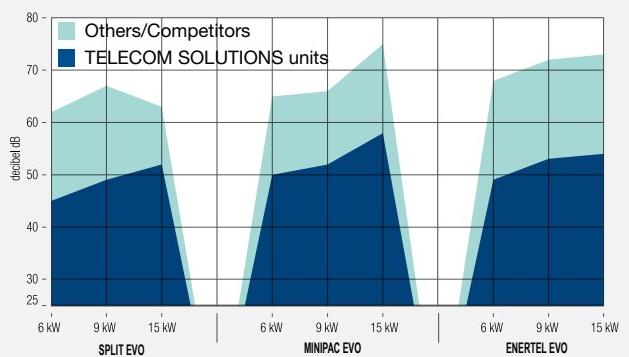
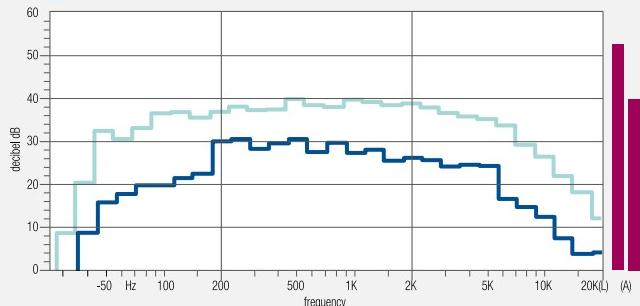
### Minimum sound emissions

Reducing sound emissions is one of the greatest needs of air conditioning units located in urban areas.

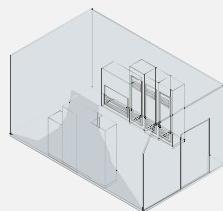
TELECOM SOLUTIONS is the new range of high efficiency air conditioners featuring a strong sound emission reduction:

- ✓ Sound proofing delivery plenum;
- ✓ Anti-vibration feet for the unit and the fans fastening;
- ✓ Compressor inside a sound proofing box with lead;
- ✓ Sound proofing recirculating fans cap;
- ✓ Condensing pressure check through the fan speed regulator;
- ✓ Autotransformer to reduce vibration.

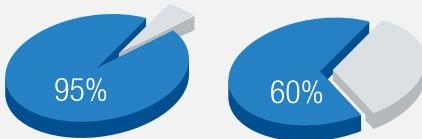
Measurement of outside with evaporating fan only in free cooling.  
Measurement of outside during recirculation.



Unmanned premises with almost no latent heat value.  
Required S.H.R. ≥95%



Manned premises with latent heat value.  
Required S.H.R. ≥60%

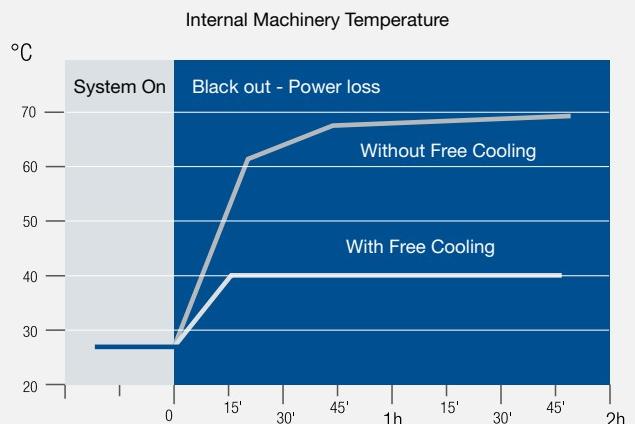


### High capacity sensitive cooling

- ✓ No latent cooling required.
- ✓ Since the technological rooms are unmanned, the latent heat values remain almost zero.
- ✓ Thus, the requested S.H.R. values (Sensible and Total Cooling Capacity Ratio) are 95%, compared to typical S.H.R values of around 60% in the manned premises.

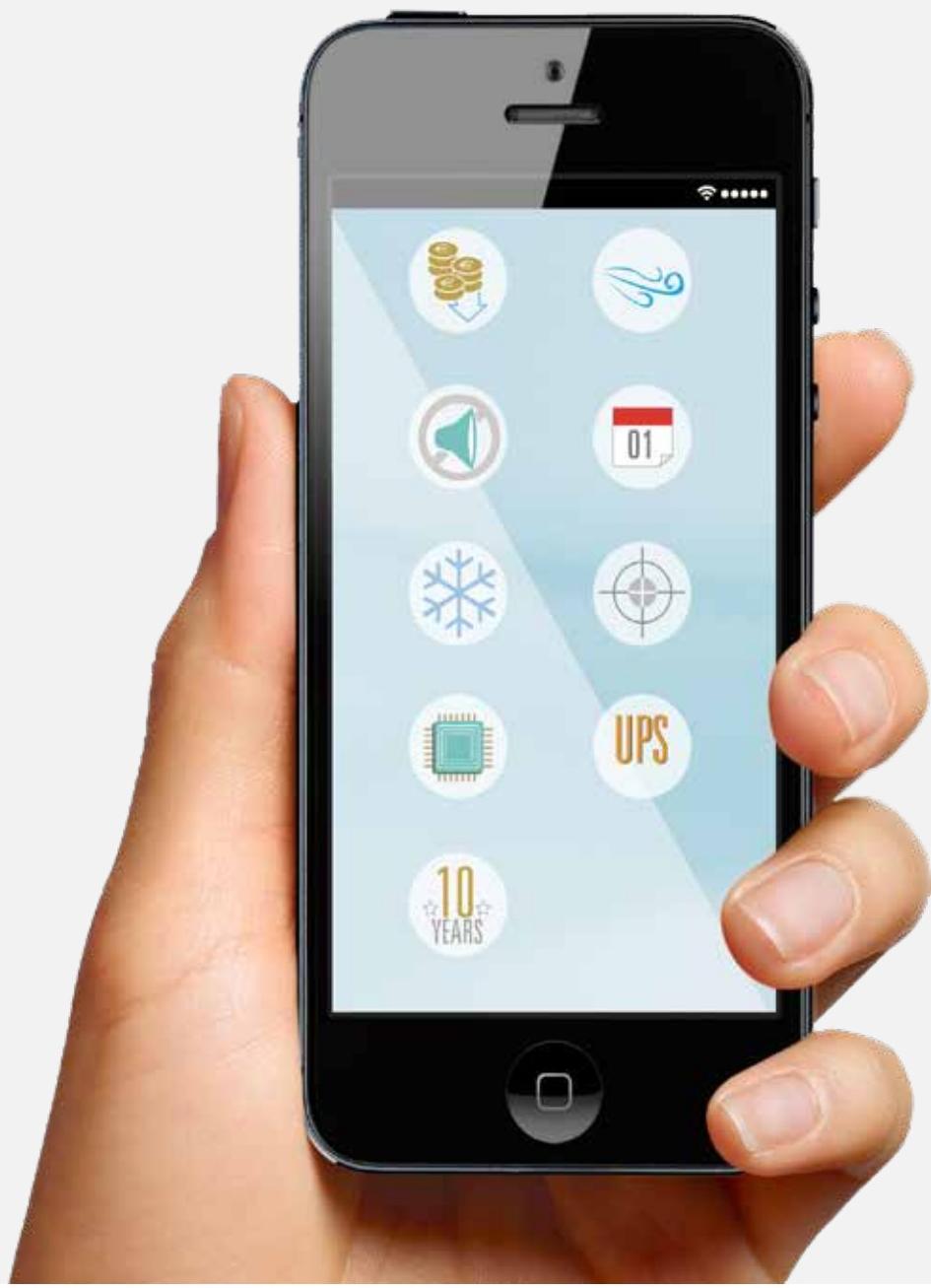
### Black-out management

- ✓ UPS connections system (48V DC)
- ✓ For the double power supply versions (UPS, 48V DC), the Free cooling function is instantly activated in the event of a blackout.



# TELECOM SOLUTIONS

**MEHITS** Telecom Solutions is the result of a research and development project among different telecommunications companies aimed at finding an innovative no-compromise solution for the modern telecommunication applications.



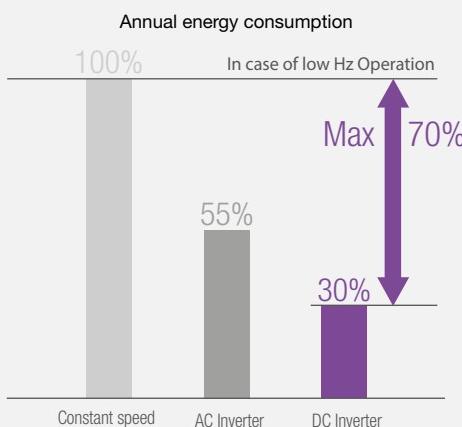


## INVERTER TECHNOLOGY

The inverter driven compressor is a key component for MEHITS's products: thanks to its extremely precise regulation of the power capacity through variable frequency, it can strongly increase the efficiency of partial loads.

Compared to a traditional on/off compressor, the inverter technology ensures a quick achievement of the desired set point and a precise control over temperature variations. Once the desired value has been reached, the compressor rotation decreases, reducing energy consumption and effectively maintaining the temperature conditions over time.

In this respect the new MEHITS's Telecom Solutions range represents the ultimate solution in air conditioning in the telecommunications sector, thanks to the most updated DC Inverter Brushless compressors and the new generation EC fans combined with the electronic thermostatic valve. Both solutions allow for perfect adaptation of the unit's performance to the real requirements of the building even at partial load, which represents more than 75% of the operating time of the system. This ensures an energy savings of up to 50% more than solutions based on traditional ON/OFF compressors.



### Low operational and maintenance costs

Key features of efficient and long-lasting air conditioning systems are reduced energy consumption combined with low operational and maintenance costs.

For this reason the modern FULL INVERTER units deliver the best cost and benefit ratios, with significant advantages in terms of TCO (Total Cost of Ownership). Consequently, the payback time is 2 years compared to NON FULL INVERTER solutions where payback per unit only comes after 10 years.

### Double Advantage: FREE COOLING + INVERTER

It is well known that energy savings are guaranteed with FREE COOLING systems. Telecom Solutions range combines innovative FULL INVERTER compressors with the free cooling technology, thus resulting in 35% higher energy savings compared to traditional on/off solutions.



# SPLIT EVO - SPLIT EVO INV

Split air conditioners for telecommunication shelters available in on-off and inverter version. Free cooling.

Cooling Capacity: **4,9 ÷ 17 kW**



## UNIT DESCRIPTION

SPLIT EVO split air conditioners for telecommunication shelters combine an outdoor condenser unit (available in both the BASIC and LT low temperature versions) with the indoor unit.

Available for ceiling or wall installation, ENERGY SPLIT, ENERGY SPLIT INV units are available with product ranges from 4,9 to 17kW, both in the ON-OFF and Inverter technology. All the units are equipped with external panels in electrogalvanised powder coated steel sheets and, upon request, with a Free Cooling damper which ensures 30% annual energy savings compared to standard systems.

The evaporating section fan works on a direct current at 48 Volts for a reliable operation even in emergency situations (optional). MEHTIS units are made to ensure a standard level of operation even under extreme environmental conditions with temperatures of up to +48°C.



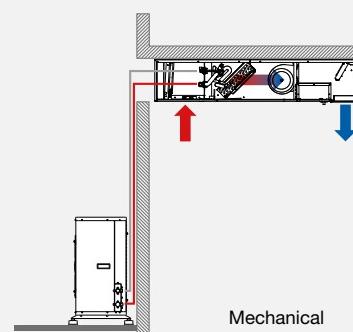
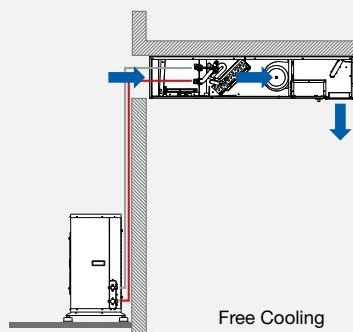
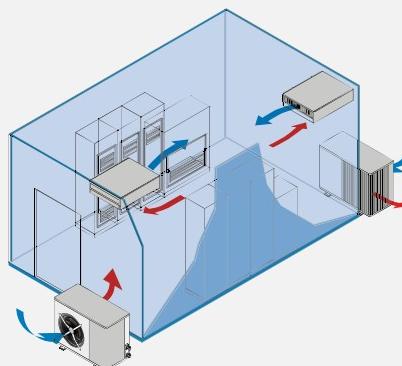
## FEATURES

- ✓ Structure and panelling in electrogalvanised powder coated steel for maximum resistance to rust.
- ✓ Total reliability and functionality of the compressor and all other components guaranteed by leading companies in the telecoms sector.
- ✓ Contacts for alarms and the machine's functioning state signals.
- ✓ Universal terminal board for complete outer control of the PLC unit.
- ✓ Condensing control for lower noise levels.
- ✓ Safety pressure switches.
- ✓ Condensing coil protection grills.
- ✓ User terminal supplied as standard.
- ✓ Wide range of accessories for easy and correct installation, and for an efficient air treatment system.
- ✓ Widespread after sales network.

## MAIN OPTIONS

- ✓ Electric heating elements.
- ✓ Serial cards for BMS interconnection.
- ✓ Double power supply (Network + UPS 48V DC).
- ✓ Free Cooling damper with opening from 0 to 100%.
- ✓ EC fans for outdoor condenser units.

## SPLIT



ON/OFF Version

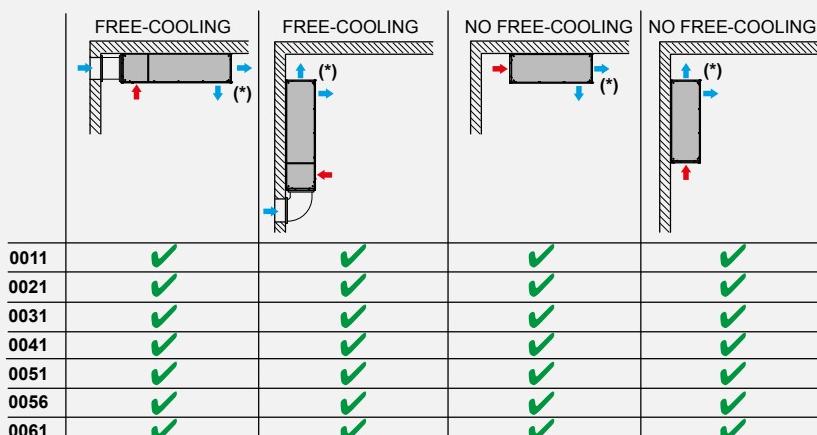
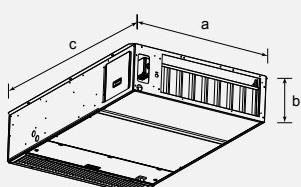




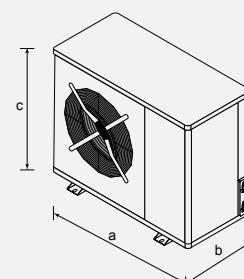
SPLIT EVO	0011	0021	0031	0041	0051	0056	0061	
N° Circuits / N°Compressors	1/1	1/1	1/1	1/1	1/1	1/1	1/1	
Compressor	rotary	scroll	scroll	scroll	scroll	scroll	scroll	
Refrigerant	R410A	R410A	R410A	R410A	R410A	R410A	R410A	
Power supply	V/Ph/Hz	230/1/50	230/1/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	
<b>COOLING CAPACITY</b>								
Total Cooling Capacity (1)	kW	4,87	6,35	8,37	9,51	10,50	14,10	15,70
Sensible Cooling Capacity (1)	kW	4,87	6,02	7,20	9,51	10,20	13,30	14,60
SHR (1)		1,00	0,95	0,86	1,00	0,97	0,94	0,93
Compressors power input (1)	kW	1,18	1,62	2,27	2,37	2,73	3,64	4,10
Evaporator air flow	m³/h	1450	1450	1600	2450	2450	3200	3200
Free-cooling air flow (opt.)	m³/h	1450	1450	1600	2450	2450	3200	3200
Evaporator fan 48 V DC power input (opt.)	kW	0,29	0,29	0,31	0,45	0,45	0,49	0,49
Evaporator fan AC power input	kW	0,20	0,20	0,21	0,49	0,49	0,52	0,52
Condenser air flow	m³/h	3200	3200	3200	3600	3600	4900	4900
Condenser fan AC power input	kW	0,13	0,13	0,13	0,13	0,13	0,25	0,25
Electric heater capacity (opt.)	kW	1,70	1,70	1,70	3,40	3,40	3,40	3,40
EER - Energy efficiency ratio (1)	kW/kW	3,24	3,26	3,21	3,18	3,13	3,20	3,22
MAX outdoor temperature	°C	48	48	48	48	48	48	48
MIN outdoor temperature	°C	-20	-20	-20	-20	-20	-20	-20
MIN outdoor temperature (LT version)	°C	-35	-35	-35	-35	-35	-35	-35
Outdoor sound pressure level (2)	dB(A)	52	53	53	56	56	58	58
Net weight indoor unit with Free cooling	kg	85	85	85	123	121	128	130
Net weight indoor unit without Free cooling	kg	74	74	74	107	98	109	111
Net weight outdoor unit	kg	67	93	93	109	102	125	130

**INSTALLATION TYPES**

(\*) Air delivery  
modifiable in the yard

**DIMENSIONS (mm)****INDOOR UNIT with free cooling**

	a	b	c
0011	990	310	1500
0021	990	310	1500
0031	990	310	1500
0041	1110	400	1523
0051	1110	400	1523
0056	1110	400	1523
0061	1110	400	1523

**INDOOR UNIT without free cooling**

	a	b	c
0011	990	310	1060
0021	990	310	1060
0031	990	310	1060
0041	1110	405	1236
0051	1110	405	1236
0056	1110	405	1236
0061	1110	405	1236

**OUTDOOR UNIT**

	a	b	c
0011	900	370	740
0021	900	370	740
0031	900	370	740
0041	900	370	990
0051	900	370	990
0056	900	420	1240
0061	900	420	1240

**NOTES**

(1) Ref. Conditions: Indoor=27°C, 45%UR Outdoor=35°C

(2) Measured at a height of 1 m and 1 m from the front of the unit in free field

The units highlighted in this publication contain HFC R410A [GWP<sub>100</sub> 2088] fluorinated greenhouse gases.

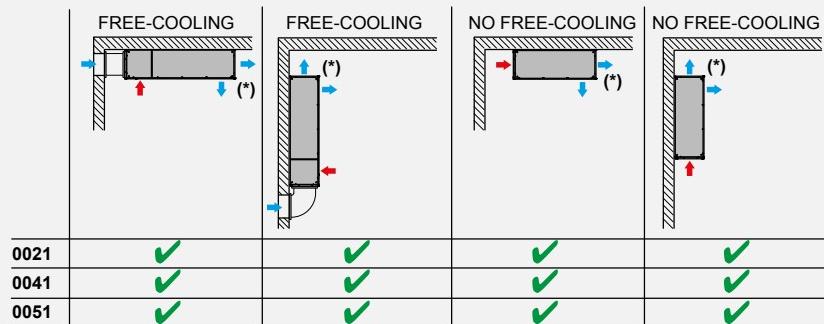
## Inverter Version



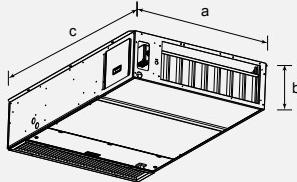
SPLIT EVO INV	0031	0051	0071
N° Circuits / N°Compressors	1/1	1/1	1/1
Compressor	rotary inverter	rotary inverter	scroll inverter
Refrigerant	R410A	R410A	R410A
Power supply	V/Ph/Hz	230/1/50	230/1/50
COOLING CAPACITY	MIN	MAX	MIN
Total Cooling Capacity (1)	kW	3,97	10,20
Sensible Cooling Capacity (1)	kW	3,73	7,81
SHR (1)		0,94	0,77
Compressors power input (1)	kW	0,75	2,39
Evaporator air flow	m³/h	800	1600
Free-cooling air flow (opt.)	m³/h	800	1600
Evaporator fan 48 V DC power input (opt.)	kW	0,09	0,31
Evaporator fan AC power input	kW	0,16	0,21
Condenser air flow	m³/h	3200	3200
Condenser fan AC power input	kW	0,13	0,13
Electric heater capacity (opt.)	kW	1,7	3,4
EER - Energy efficiency ratio (1)	kW/kW	3,82	3,74
MAX outdoor temperature	°C	48	48
MIN outdoor temperature	°C	-20	-20
MIN outdoor temperature (LT version)	°C	-35	-35
Outdoor sound pressure level (2)	dB(A)	52	56
Net weight indoor unit with Free cooling	kg	85	120
Net weight indoor unit without Free cooling	kg	74	109
Net weight outdoor unit	kg	100	108
			175

## INSTALLATION TYPES

(\*) Air delivery  
modifiable in the yard



## DIMENSIONS (mm)

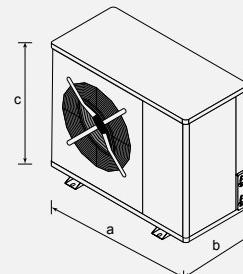


## INDOOR UNIT with free cooling

	a	b	c
0031	990	310	1500
0051	1110	400	1523
0071	1340	450	1618

## INDOOR UNIT without free cooling

	a	b	c
0031	990	310	1060
0051	1240	405	1236
0071	1200	450	1236



## OUTDOOR UNIT

	a	b	c
0031	900	420	990
0051	900	420	1240
0071	1200	550	1450

## NOTES

(1) Ref. Conditions: Indoor=27°C, 45%UR Outdoor=35°C

(2) Measured at a height of 1 m and 1 m from the front of the unit in free field

The units highlighted in this publication contain HFC R410A [GWP<sub>100</sub> 2088] fluorinated greenhouse gases.

# ENERTEL EVO - ENERTEL EVO INV



Packaged air conditioners for telecommunication shelters available in on-off and inverter version. Free Cooling. Cooling Capacity: **2 ÷ 15 kW**

## UNIT DESCRIPTION

Available with cooling capacity from 1,9 to 15 kW. They are direct expansion packaged systems for indoor installation, which are fitted with external panels in powder coated steel sheets.

The units can be fitted with a Free Cooling damper (optional) that ensures 30% annual energy savings compared to standard systems, while the evaporating section fan works on a direct current at 48 Volts for a reliable operation even in an emergency situation. (optional).

MEHTIS units are made to ensure a standard level of operation even under extreme environmental conditions with temperatures of up to +48°C. ENERTEL EVO, ENERTEL EVO INV are available in two different versions: in the UNDER units, the outlet air flow is flush to the ground and pointed downwards, while in the OVER versions (for ENERTEL EVO units only) the air flow inlet is from the front side and the air flow outlet is upwards or frontal.



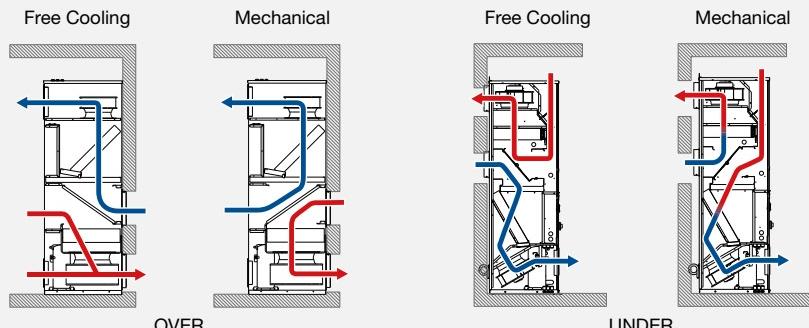
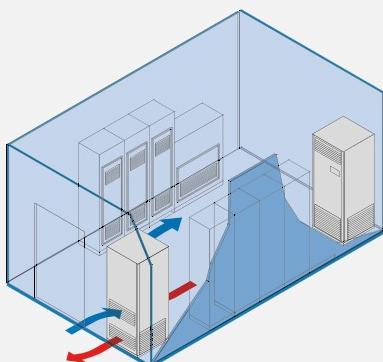
## FEATURES

- ✓ Structure and panelling in electrogalvanised powder coated steel for maximum resistance to rust.
- ✓ Total reliability and functionality of the compressor and all other components guaranteed by leading companies in the telecoms sector.
- ✓ Contacts for alarms and the machine's functioning state signals.
- ✓ Universal terminal board for complete outer control of the PLC unit.
- ✓ Condensing control for lower noise levels.
- ✓ Safety pressure switches.
- ✓ Condensing coil protection grills.
- ✓ User terminal supplied as standard.
- ✓ Wide range of accessories for easy and correct installation, and for an efficient air treatment system.
- ✓ Widespread after sales network.

## MAIN OPTIONS

- ✓ Electric heating elements.
- ✓ Serial cards for BMS interconnection.
- ✓ Double power supply (Network + UPS 48V DC)
- ✓ Free Cooling damper with opening from 0 to 100%.
- ✓ Evaporator EC fans (for models 0003 ÷ 0056).

## INDOOR



## ON/OFF Version



ENERTEL EVO	0001	0003	0004	0011	0021	0031	0041	0051	0056	0061
N° Circuits / N°Compressors	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Compressor	rotary	rotary	rotary	rotary	scroll	scroll	scroll	scroll	scroll	scroll
Refrigerant	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Power supply	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50
<b>COOLING CAPACITY</b>										
Total Cooling Capacity (1)	kW	1,94	2,92	3,40	4,82	6,00	7,99	9,43	10,60	13,80
Sensible Cooling Capacity (1)	kW	1,53	2,83	3,15	4,82	5,90	7,14	9,23	9,70	13,40
SHR (1)		0,79	0,97	0,93	1,00	0,98	0,89	0,98	0,92	0,97
Compressors power input (1)	kW	0,58	0,80	0,96	1,17	1,64	2,20	2,30	2,71	3,40
Evaporator air flow	m³/h	300	990	990	1450	1450	1450	2200	2200	3200
Free-cooling air flow (opt.)	m³/h	300	990	990	1450	1450	1450	2200	2200	3200
Evaporator fan 48 V DC power input (opt.)	kW	0,04	0,18	0,18	0,24	0,24	0,25	0,45	0,45	0,49
Evaporator fan type		EC	AC	AC	AC	AC	AC	AC	AC	EC
Evaporator fan power input	kW	0,06	0,15	0,15	0,26	0,26	0,26	0,48	0,48	0,52
Condenser air flow	m³/h	500	1210	1210	2600	2600	2600	3700	3700	4500
Condenser fan type		AC	AC	AC	AC	AC	EC	EC	EC	EC
Condenser fan power input	kW	0,14	0,23	0,23	0,73	0,73	0,73	0,79	0,79	0,83
Electric heater capacity (opt.)	kW	1	1	1	1,7	1,7	1,7	3,4	3,4	3,4
EER - Energy efficiency ratio (1)	kW/kW	2,49	2,47	2,54	2,24	2,29	2,50	2,64	2,66	2,91
MAX outdoor temperature	°C	48	48	48	48	48	48	48	48	48
MIN outdoor temperature	°C	-20	-20	-20	-20	-20	-20	-20	-20	-20
MIN outdoor temperature (LT version)	°C	n.a	n.a	n.a	-35	-35	-35	-35	-35	-35
Outdoor sound pressure level (2)	dB(A)	49	52	52	53	53	54	56	56	60
Net weight OVER	kg	43,5	n.a.	n.a.	163	176	185	262	270	275
Net weight UNDER	kg	n.a.	85	85	180	193	202	252	260	265

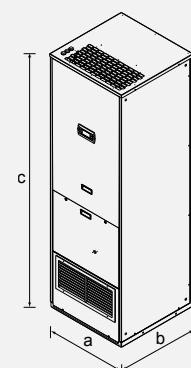
## INSTALLATION TYPES

	OVER	UNDER	OVER	OVER	UNDER	UNDER	UNDER	UNDER
0001	✓	✗	✗	✗	✗	✗	✗	✗
0003	✗	✓	✗	✗	✗	✗	✗	✗
0004	✗	✓	✗	✗	✗	✗	✗	✗
0011	✗	✗	✓	✓	✓	✓	✓	✓
0021	✗	✗	✓	✓	✓	✓	✓	✓
0031	✗	✗	✓	✓	✓	✓	✓	✓
0041	✗	✗	✓	✓	✓	✓	✓	✓
0051	✗	✗	✓	✓	✓	✓	✓	✓
0056	✗	✗	✓	✓	✓	✓	✓	✓
0061	✗	✗	✓	✓	✓	✓	✓	✓

## DIMENSIONS (mm)

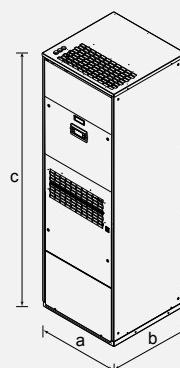
## ENERTEL EVO - UNDER

	a	b	c
0001	--	--	--
0003	505	395	1265
0004	505	395	1265
0011	650	650	2000
0021	650	650	2000
0031	650	650	2000
0041	895	750	2050
0051	895	750	2050
0056	895	750	2050
0061	895	750	2050



## ENERTEL EVO - OVER

	a	b	c
0001	394	250	900
0003	--	--	--
0004	--	--	--
0011	650	650	2075
0021	650	650	2000
0031	650	650	2075
0041	895	750	2050
0051	895	750	2050
0056	895	750	2050
0061	895	750	2050



## NOTES

(1) Ref. Conditions: Indoor=27°C, 45%UR Outdoor=35°C

(2) Measured at a height of 1 m and 1 m from the front of the unit in free field

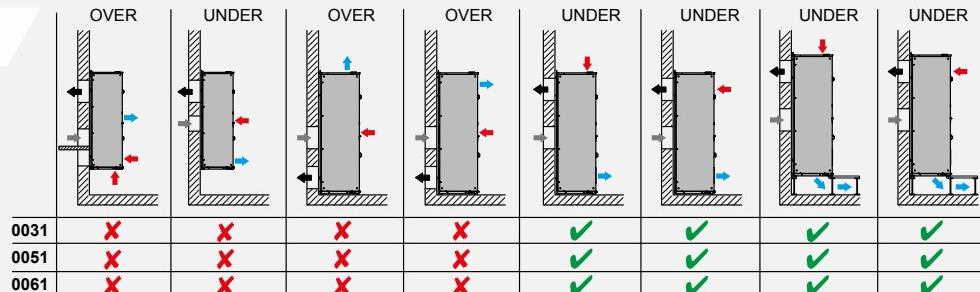
The units highlighted in this publication contain HFC R410A [GWP<sub>100</sub> 2088] fluorinated greenhouse gases.

## Inverter Version



ENERTEL EVO INV	0031	0051		0061	
N° Circuits / N°Compressors	1/1	1/1		1/1	
Compressor	rotary inverter	rotary inverter		scroll inverter	
Refrigerant	R410A	R410A		R410A	
Power supply	V/Ph/Hz	230/1/50	230/1/50	400/3N/50	
COOLING CAPACITY		MIN	MAX	MIN	MAX
Total Cooling Capacity (1)	kW	3,93	9,66	4,32	12,10
Sensible Cooling Capacity (1)	kW	3,27	7,56	4,31	11,60
SHR (1)		0,83	0,78	1,00	0,96
Compressors power input (1)	kW	0,74	2,29	0,79	3,09
Evaporator air flow	m³/h	800	1600	1600	3200
Free-cooling air flow (opt.)	m³/h	800	1600	1600	3200
Evaporator fan 48 V DC power input (opt.)	kW	0,08	0,25	0,14	0,48
Evaporator fan type		AC		EC	
Evaporator fan power input	kW	0,2	0,26	0,14	0,48
Condenser air flow	m³/h	2600	2600	4500	4500
Condenser fan type		AC		EC	
Condenser fan power input	kW	0,73	0,73	0,75	0,75
Electric heater capacity (opt.)	kW		1,7		3,4
EER - Energy efficiency ratio (1)	kW/kW	2,35	3,79	2,57	3,39
MAX outdoor temperature	°C	48		48	
MIN outdoor temperature	°C	-20		-20	
Outdoor sound pressure level (2)	dB(A)	54		56	
Net weight UNDER	kg	205		246	

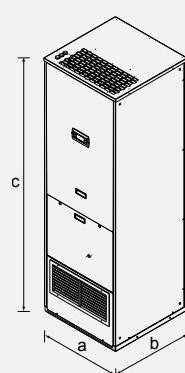
## INSTALLATION TYPES



## DIMENSIONS (mm)

## ENERTEL EVO - UNDER

	a	b	c
0031	650	650	2000
0051	895	750	2050
0061	895	750	2050



## NOTES

(1) Ref. Conditions: Indoor=27°C, 45%UR Outdoor=35°C

(2) Measured at a height of 1 m and 1 m from the front of the unit in free field

The units highlighted in this publication contain HFC R410A [GWP<sub>100</sub> 2088] fluorinated greenhouse gases.

# MINIPAC EVO - MINIPAC EVO INV

Packaged air conditioners for telecommunication shelters available in on-off and inverter version. Free-cooling.

Cooling Capacity: **4,9 ÷ 17 kW**



## UNIT DESCRIPTION

The MINIPAC EVO, MINIPAC EVO INV air conditioners for telecommunication shelters are direct expansion packaged systems for outdoor installation. Available with cooling capacities from 2 to 20kW, all the units are fitted with external panelling in electrogalvanised powder coated steel sheets. The units can be fitted with a Free Cooling damper (optional) that ensures 30% annual energy savings compared to a traditional solution. The evaporating fan works on a constant current of 48 Volts to ensure reliable operation even in an emergency situation.

MINIPAC EVO and MINIPAC EVO INV units are available in two different versions: with air flow outlet from the upper side (OVER) or from the bottom (UNDER).



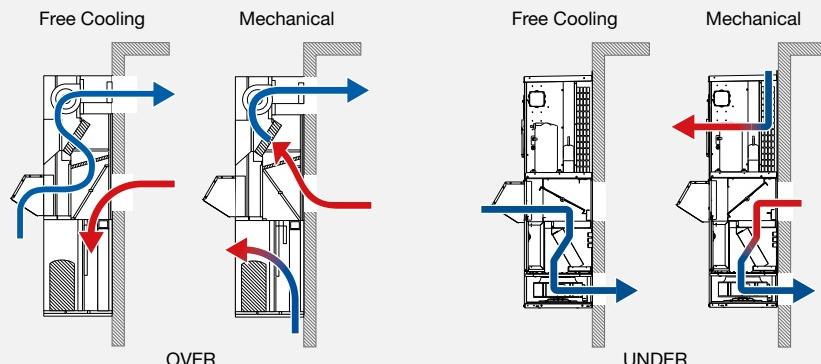
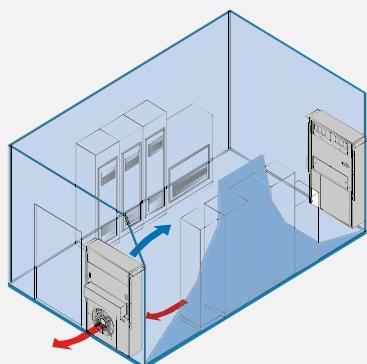
## FEATURES

- ✓ Structure and panelling in electrogalvanised powder coated steel sheets for maximum resistance to rust. (Peraluman panelling available upon request)
- ✓ Total reliability and functionality of the compressor and all other components guaranteed by leading companies in the telecoms sector.
- ✓ Contacts for alarms and the machine's functioning state signals.
- ✓ Universal terminal board for complete outer control of the PLC unit.
- ✓ Condensing control for lower noise levels.
- ✓ Safety pressure switches.
- ✓ Condensing coil protection grills.
- ✓ User terminal supplied as standard.
- ✓ Wide range of accessories for easy and correct installation, and for an efficient air treatment system.
- ✓ Widespread after sales network

## MAIN OPTIONS

- ✓ Electric heating elements.
- ✓ Serial cards for BMS interconnection.
- ✓ Double power supply (Network + UPS 48V DC).
- ✓ Free Cooling damper with opening from 0 to 100%.
- ✓ Evaporator EC fans.

## SPLIT



## ON/OFF Version



MINIPAC EVO	0001	0003	0004	0011	0021	0031	0041	0051	0056	0061	0071	0091	
N° Circuits / N°Compressors	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	
Compressor	rotary	rotary	rotary	rotary	scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll	
Refrigerant	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	
Power supply	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	
<b>COOLING CAPACITY</b>													
Total Cooling Capacity (1)	kW	1,94	2,87	3,46	4,90	6,41	8,38	9,58	10,50	14,30	16,60	18,20	20,50
Sensible Cooling Capacity (1)	kW	1,53	2,87	3,09	4,90	6,04	7,21	9,58	10,20	13,50	15,20	15,80	17,70
SHR (1)		0,79	1,00	0,89	1,00	0,94	0,86	1,00	0,97	0,94	0,92	0,87	0,86
Compressors power input (1)	kW	0,58	0,79	0,96	1,16	1,58	2,19	2,34	2,69	3,33	3,84	4,74	5,47
Evaporator air flow	m³/h	300	700	700	1450	1450	1600	2450	2450	3200	3500	3500	3900
Free-cooling air flow (opt.) (2)	m³/h	300	700	700	1450	1450	1600	2450	2450	3200	3500	3500	3900
Evaporator fan 48 V DC power input (opt.)	kW	0,04	0,18	0,18	0,24	0,24	0,25	0,50	0,50	0,48	0,94	0,94	0,99
Evaporator fan AC power input	kW	n.a.	0,15	0,15	0,26	0,26	0,26	0,48	0,48	0,48	0,93	0,93	0,91
Condenser air flow	m³/h	500	1100	1100	2500	2500	2500	4000	4000	4900	5900	5900	5900
Condenser fan AC power input	kW	0,10	0,14	0,14	0,13	0,13	0,13	0,22	0,22	0,68	0,38	0,38	0,38
Electric heater capacity (opt.)	kW	1,0	1,0	1,0	1,7	1,7	1,7	3,4	3,4	3,4	3,4	3,4	3,4
EER - Energy efficiency ratio (1)	kW/kW	3,34	2,52	2,64	3,22	3,30	3,29	3,17	3,12	3,17	3,21	3,00	3,02
MAX outdoor temperature	°C	48	48	48	48	48	48	48	48	48	48	48	48
MIN outdoor temperature	°C	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20
MIN outdoor temperature (LT version)	°C	n.a.	n.a.	n.a.	-35	-35	-35	-35	-35	-35	-35	-35	-35
Outdoor sound pressure level (3)	dB(A)	49	52	52	52	52	52	54	54	58	62	62	62
Net weight OVER	kg	43,5	n.a.	n.a.	160	180	175	205	215	220	290	295	300
Net weight UNDER	kg	n.a.	75	75	165	175	170	265	270	275	300	310	325

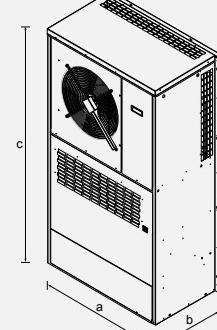
## INSTALLATION TYPES

	UNDER	OVER	UNDER
0001	✓	✗	✗
0003	✓	✗	✗
0004	✓	✗	✗
0011	✗	✓	✓
0021	✗	✓	✓
0031	✗	✓	✓
0041	✗	✓	✓
0051	✗	✓	✓
0056	✗	✓	✓
0061	✗	✓	✓
0071	✗	✓	✓
0090	✗	✓	✓

## DIMENSIONS (mm)

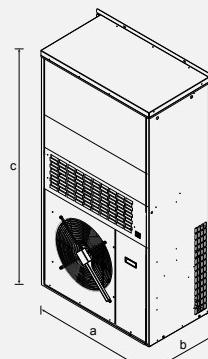
## ENERTEL EVO - UNDER

	a	b	c
0001	--	--	--
0003	505	394	1236
0004	505	394	1236
0011	976	500 (745)	1735
0021	976	500 (745)	1735
0031	976	500 (745)	1735
0041	1016	600 (840)	1935
0051	1016	600 (840)	1935
0056	1016	600 (840)	1935
0061	1196	780 (1025)	2280
0071	1196	780 (1025)	2280
0091	1196	780 (1025)	2280



## ENERTEL EVO - OVER

	a	b	c
0001	394	250	900
0003	--	--	--
0004	--	--	--
0011	970	500 (745)	1814
0021	970	500 (745)	1814
0031	970	500 (745)	1814
0041	1011	600 (850)	2115
0051	1011	600 (850)	2115
0056	1011	600 (850)	2115
0061	1178	777 (856)	2240
0071	1178	777 (856)	2240
0091	1178	777 (856)	2240



The dimensions between () include rain proof cover, when foreseen

## NOTES

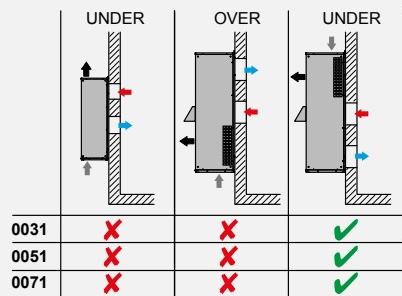
- (1) Ref. Conditions: Indoor=27°C, 45%UR Outdoor=35°C
- (2) For MINIPAC EVO 0001, 0003 and 0004 free cooling function is available through external extractor accessory
- (3) Measured at a height of 1 m and 1 m from the front of the unit in free field
- The units highlighted in this publication contain HFC R410A [GWP<sub>100</sub> 2088] fluorinated greenhouse gases.

## Inverter Version



MINIPAC EVO INV	0031	0051		0071	
Nº Circuits / N°Compressors	1/1	1/1		1/1	
Compressor	rotary inverter	rotary inverter		scroll inverter	
Refrigerant	R410A	R410A		R410A	
Power supply	V/Ph/Hz	230/1/50		230/1/50	
COOLING CAPACITY		MIN	MAX	MIN	MAX
Total Cooling Capacity (1)	kW	3,94	9,64	4,46	12,50
Sensible Cooling Capacity (1)	kW	3,68	7,85	4,46	12,00
SHR (1)		0,93	0,81	1,00	0,96
Compressors power input (1)	kW	0,75	2,30	0,79	3,10
Evaporator air flow	m³/h	800	1600	1600	3200
Free-cooling air flow (opt.)	m³/h	800	1600	1600	3200
Evaporator fan 48 V DC power input (opt.)	kW	0,08	0,25	0,14	0,48
Evaporator fan AC power input	kW	0,2	0,26	0,36	0,48
Condenser air flow	m³/h	3200	3200	4000	4000
Condenser fan AC power input	kW	0,13	0,13	0,68	0,68
Electric heater capacity (opt.)	kW		1,7	3,4	3,4
EER - Energy efficiency ratio (1)	kW/kW	5,25	4,19	5,65	4,03
MAX outdoor temperature	°C		48		48
MIN outdoor temperature	°C		-20		-20
Outdoor sound pressure level (3)	dB(A)	52		54	62
Net weight UNDER	kg	175		230	310

## INSTALLATION TYPES

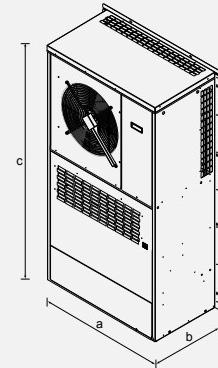


## DIMENSIONS (mm)

## MINIPAC EVO - UNDER

	a	b	c
0031	976	500 (745)	1735
0051	1016	600 (840)	1935
0061	1196	780 (1025)	2280

The dimensions between ( ) include rain proof cover, when foreseen



## NOTES

- (1) Ref. Conditions: Indoor=27°C, 45%UR Outdoor=35°C
- (2) For MINIPAC EVO 0001, 0003 and 0004 free cooling function is available through external extractor accessory
- (3) Measured at a height of 1 m and 1 m from the front of the unit in free field
- The units highlighted in this publication contain HFC R410A [GWP<sub>100</sub> 2088] fluorinated greenhouse gases.

# FREE COOLER



Free cooling unit for telecommunication shelters

## UNIT DESCRIPTION

Designed for the cooling of highly technological environments (telecommunication shelters and cabinets), FKO/FKI FREE COOLER units feature an advanced free cooling system that utilises the outdoor air to lower the indoor environment temperature. Outdoor air absorbed from the fan is filtered and then released to the indoor space.

The unit is available in indoor (FKI) or outdoor versions (FKO), in both cases provided with a waterproof jacket in order to avoid even a drop of water from entering the environment. Directly managed by the PLC controller, the units can be coupled to a TELECOM air conditioner's range. This ensures getting the best advantage from the free cooling operation, whenever possible.

For the stand-alone operation an electrical board kit able to manage the unit and two further pre-existing air conditioners are also available. In pre-existing plants, this solution offers the opportunity to add the free cooling function at a later date.

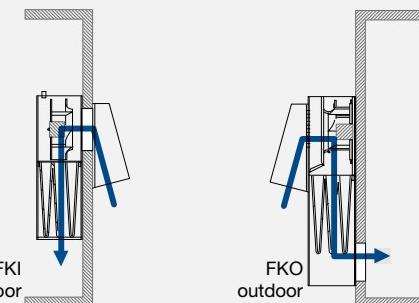


## FEATURES

- ✓ Structure and panelling in electrogalvanised powder coated steel sheets for maximum resistance to rust.
- ✓ Total reliability and functionality of the compressor and all other components guaranteed by leading companies in the telecoms sector.
- ✓ 48 VDC EC radial fan with continuous speed modulation.
- ✓ Class G3 air filter.

## MAIN OPTIONS

- ✓ Electrical panel for the unit's stand-alone management.
- ✓ Clogged filter sensor.
- ✓ Air prefilter in metal frame.



## INDOOR / OUTDOOR

### Tecnical Data

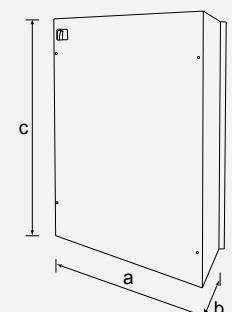
FREE COOLER	0021	0041	0051
VDC power supply	V	48	48
Max absorbed power	W	220	230
Max air flow	m³/h	2300	2450
Cooling capacity (1)	kW	7,67	8,17
EER	kW/kW	34,85	35,51
Max frontal sound pressure (2)	dB(A)	62	65
		66	

(1) Ref. Conditions: 27°C indoor temperature -17°C outdoor temperature  
(2) Measured at a height of 1 m and 1 m from the front of the unit in free field  
The dimensions between ( ) include rain proof cover, when foreseen

## DIMENSIONS (mm)

### FREE COOLER

	a	b	c
FKI 0021	646	296	955
FKI 0041	646	296	955
FKI 0051	646	296	955
FKO 0021	646	296 (542)	1227
FKO 0041	646	296 (542)	1227
FKO 0051	646	296 (542)	1227





for a greener tomorrow



Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.